

## Sensors

# Scintillating Quantum Dots for Imaging X-rays (SQDIX) for Aircraft Inspection

A revolutionary system that enables characterization of microcracking in composites or x-ray inspection of in-service turbine engines

NASA's Langley Research Center has developed Scintillating Quantum Dots for Imaging X-rays (SQDIX) technology that enables the creation of x-ray detectors that are more sensitive than current x-ray detectors. In addition to superior sensitivity, SQDIX also offers the promise of reducing the cost of x-ray detectors by at least by a factor of 10. Simply stated, SQDIX has the potential to change the way that x-ray detection is done.

## BENEFITS

- Enables very high-speed x-ray imaging.
- Environmentally friendly in comparison with conventional scintillator materials.
- Minimizes x-ray exposure to the patient in medical imaging applications, and also the time required for exposure to ionizing radiation. Combined with reduced cost, this could make some previously cost-prohibitive forms of medical x-ray imaging more widely available.

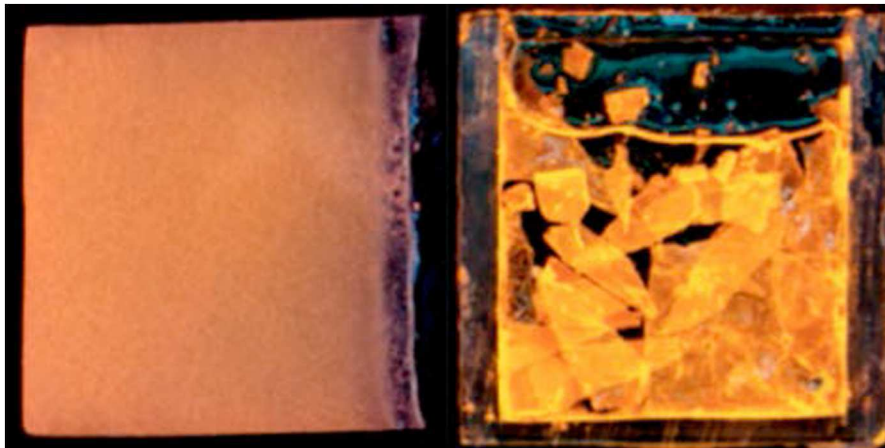
technology solution

# NASA Technology Transfer Program

Bringing NASA Technology Down to Earth

## THE TECHNOLOGY

The SQDIX system is an enabling technology that will have game-changing impacts across many fields including DoE, DoD, NASA, medical imaging fields, aircraft inspection and many other fields. StQDs are sensitive to x-ray radiation and emit visible photons that are tunable in wavelength. Development of this technology will greatly impact NASA's ability to use X-Rays as an inspection method. This directly addresses the Aviation Safety challenge in the 2010 National Aeronautics R&D Plan to monitor and assess the health of aircraft more efficiently and effectively as well as all NASA spaceflights beyond earth's magnetic field.



StQD polymers under UV excitation

## APPLICATIONS

The technology has several potential applications:

- ➡ Medical imaging
- ➡ Aircraft inspection

## PUBLICATIONS

Patent Pending

National Aeronautics and Space Administration

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NASA's Technology Transfer Program pursues the widest possible applications of agency technology to benefit US citizens. Through partnerships and licensing agreements with industry, the program ensures that NASA's investments in pioneering research find secondary uses that benefit the economy, create jobs, and improve quality of life.

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